the Office Action up until December 23, 2002, is included herewith. Claim 1 has been amended and claim 4 cancelled. The substance of claim 4 is now incorporated into amended claim 1.

Response To Rejections Under 35 USC § 103

Claim 1-4, 7, 11, 17, 18 and 20 were rejected in the Office Action under 35 USC § 103(a) as obvious by US Patent No. 6,213,638 to Rattner in view of US Patent No. 4,894,855 to Kresse. The Examiner asserts that Rattner discloses an X-ray device with a source (2), detector (3) mounted at an invariable distance on a rigid common holding device (1) changed in a plane defined by the supporting members (1, b), connected to a supporting or displacement device (5) composed of a plurality of hinged, serially interconnected supporting members (7) as a robot arm to position completely (b, alpha, beta) along 6 axes, that the individual supporting member may be individually controlled (g (individual motors)), while the holding device in the form of a C-arm is connected to the holding device by way of a hinge (4 and beta) which rotates about a horizontal axis of the hinge (A).

The Examiner further asserts that Rattner does not appear to disclose plane hinges, that Kresser does at col. 2, lines 61-68 and col. 3 at lines 1-2, and that it would have been obvious to the skilled artisan to modify Rattner with Kresse to come up with the invention as claimed. Applicants respectfully disagree.

Applicant's claim 1 sets forth an X-ray device provided with an X-ray source and an X-ray detector which are mounted at different ends of a common holding device, the holding device being connected to the room by way of a supporting device, wherein the supporting device comprises a plurality of hinged, serially interconnected supporting members, wherein the hinges connecting the supporting members are plane hinges, and wherein the position of the common holding device is changes in a plane defined by the supporting members which may be individually controlled.

As asserted by the Examiner, Rattner does not disclose plane hinges. And while the Examiner asserts that Kresse teaches plane hinges at col. 2, lines 61-68, and col. 3, lines 1-2, this is not the case.

That is, Kresse al col. 2, lines 61-68 and col. 3, lines 1-2, sets forth that "[e]ach support means 5, 6, 7 includes a base 8, containing a motor M for moving the robot arm, connected either to the wall, ceiling or floor of the examination room. Each supporting means 5, 6 and 7 also includes a first lever connected to the base 8 in a manner permitting rotational and pivotable

movement driven by the motor M. Each supporting means 5, 6 and 7 also includes a second lever 10, connected to the free end of the first lever 9, which can also be pivoted by the motor M."

While applicants agree that Kresse uses levers, they strongly disagree that Kresse teaches the use of plane hinges as asserted by the Examiner.

It follows that combining Rattner and Kresse would not realize an invention as set forth in applicants independent claim 1, and claim 1 is therefore not obvious under 35 USC § 103(a) by Rattner in view of Kresse. Because claims 2-4, 7, 11, 17, 18 and 20 depend from claim 1, those claims are non-obvious in view of combined teachings of Rattner and Kresse under § 103(a) for at least the reasons set forth for the patentability of claim 1. Applicants, therefore, respectfully request withdrawal of the rejection of claims 1-4, 7, 11, 18, 19 and 20.

Claim 5 was rejected in the Office Action as unpatentable over Rattner in view of Kresse as applied to claim 5, and further in view of US Patent No. 3,281,598 to Hollstein. The Examiner states that Rattner does not teach a hinge connected to a holding device permitting 360 degree rotation about an axis, but Holstein does, rendering claim 5 obvious.

Applicants respectfully disagree. Applicants' claim 5 depends from claim 1, which is non-obvious for at least the reasons applicants have provided in their argument set forth above. More particularly, claim 5 is the x-ray device of claim 1 with the further limitation of the claim 5 language. Claim 5 is therefore patentable for at least those reasons set forth for the patentability of claim 1. Applicants respectfully assert that claim 5 is not obvious under 35 USC Section 103(a) over Rattner in view of Kresse and further in view of Hollstein, and request withdrawal of the rejection to claim 5 based thereon.

Claim 6 is rejected under 35 USC 103(a) as unpatentable over Rattner in view of Kresse as applied to claim 1, and further in view of US Patent No. 3,784,837 to Holmstrom. The Examiner asserts that Rattner and Kresse teach applicants' device but do not teach a holding device composed of at least two holding members for source and detector, but Holstrom's Fig. 1 does, and that it would have been obvious to incorporate Rattner and Kresse into Holstrom (col. 1, lines 6-8; col. 2, lines 1-9). Applicants respectfully disagree.

Applicants' claim 6 sets forth an X-ray device as claimed in claim 1, wherein the holding device is composed of at least two holding members, the X-ray source is being mounted on a first holding member and the X-ray detector is mounted on a second holding member.

Holmstrom's Fig. 1 discloses an x-ray tube 1 and an x-ray image amplifier 2 which are hung by a single stand 3 from the ceiling 4. The stand consists of a column 5, bracket 7 swingable upon the column about a horizontal axle 6, a carrying arm 9 for the x-ray tube 1, where the arm is mounted upon one end of the bracket and being swingable about horizontal axle 8 extending parallel to axle 6, and a carrying arm 11 for the x-ray image amplifier 2 located at the other end of the bracket 7 and swingable about horizontal axle 10 also extending parallel to axle 6. The x-ray tube and the x-ray image intensifier about horizontal axles 12, 13, which axles are also parallel to axle 6. The stand 3 is attached to the ceiling to be rotatable about vertical axis 15.

Holmstrom's Fig. 1 does not show a holding device including at least two holding members. Holmstrom's Fig. 1 merely shows what is described above.

Rattner does not teach or suggest applicants' supporting member. Moreover, even were Rattner to disclose applicants' device, as asserted by the Examiner, combining Holmstrom with Rattner would still not realize a device such as that set forth in applicants' claim 1, from which claim 6 depends.

For that matter, there is no teaching or suggestion inn either reference for combining the references, still less for combining the references to realize a device to move an x-ray source freely around the patient. There is no inference or suggestion of same purpose in either reference, nor any suggestion in either reference that either recognizes a need for moving the x-ray source freely about a patient. Still further, the desirability of a feature of applicants' claims does not render the feature obvious, and as mentioned, a careful reading of both references fails to realize any such teaching or suggestion.

It follows that claim 6 is not obvious by Rattner in view of Holmstrom under 35 USC § 103(a), for at least the reasons set forth, and the reasons set forth above with respect to the patentability of claim 1, and applicants respectfully request withdrawal of the claim rejection thereunder.

Claims 8, 10, 14 and 15 were rejected under 35 USC §103(a) in the Office Action over Rattner in view of Kresse as applied to claim 1, and further in view of US Patent No. 4,987,583, to Travanty, et al. The Examiner asserts that Rattner does not disclose a mechanical contact sensor for producing a signal to monitor distance between the examined object and source or detector with braking when a threshold distance falls below a minimum, but that Travanty discloses a mechanical

sensor producing a signal (col. 3, lines 63-66) to monitor distance between examined objects and the source and detector (Abstract, lines 2-4, col. 3, lines 50-56) with braking when a threshold below a minimum is reached (col. 2, lines 11-14). The Examiner asserts obviousness therefore. Applicants respectfully disagree.

Each of Kresse's support means shown in its figure includes a base with a motor for moving a robot arm connected either to the wall, ceiling or floor. Each supporting means includes a first lever connected to the base to permit rotational and pivotal movement by the motor, and a second lever connected to the first lever pivotable by the motor. There is no correspondence between Kresse's structure and the manipulator set forth in applicants' claim 1. Rattner does not disclose applicants' device as claimed.

Accordingly, applicants respectfully assert that one skilled in the art would not read Rattner, Kresse and Travanty and see that the combination would realize an invention such as that set forth by applicants' claim 1, nor claims 8, 10, 14 and 15 which depend from claim 1. For that matter, there is nothing in Rattner, Kresse or Travanty which would teach or suggest combining same to realize an invention such as set forth in claims 8, 10, 14 and 15. Hence, applicants respectfully assert that the Examiner may be inadvertently using hindsight to support the rejections, asserts that claims 8, 10, 14 and 15, are not obvious over the combined references, and request withdrawal of the rejections to each of claims 8, 10, 14 and 15 in view of the art combinations.

Claims 9 and 12 were rejected in the Office action under Section 103(a) by Rattner in view of Kresse and Travanty as applied to claim 8, and further in view of Hinton. The Examiner acknowledges that Rattner does not teach software control of the C-arm and ultrasound monitoring of the object and X-ray device, Hinton teaches software control of the C-arm (coil 5, lines 14-19) and ultrasound monitoring of the object and X-ray device (Abstract, lines 1-3, col. 1, lines 48-53, and col. 12, lines 53-58), rendering claims 9 and 12 obvious.

Applicants respectfully disagree.

Applicants' claim 8 sets forth an X-ray device as claimed in claim 1, such that there are provided means for monitoring the distance between an object to be examined and moving parts of the X-ray device, notably the X-ray source and the X-ray detector. Applicants' claim 9 sets forth the X-ray device as claimed in claim 8, wherein the means for monitoring the distance are provided with

ultrasound sensors and ultrasound detectors. Applicants' claim 12 sets forth the X-ray device as claimed in claim 8, wherein the serial manipulator is controlled by software.

There is not teaching or suggestion for combining the three references to realize an invention as set forth in either of applicants' claims 9 and 12. Furthermore, because of the above stated deficiencies of Rattner and Kresse, even combining the three references would not realize the devices as claimed.

Accordingly, applicants respectfully assert that claims 9 and 12 are not obvious in view of Rattner, Travanty, Kresse and Hinton, for at least the reasons set forth above for the patentability of claims 1 and 8, and respectfully request withdrawal of the rejections to these claims under Section 103(a).

Claim 13 was rejected as unpatentable under 35 USC 103(a) over Rattner in view of Kresse and Holstrom as applied to claim 6, and further in view of Japanese Patent No. JP 06-105831 to Yamamoto. The Examiner asserts that Rattner does not disclose the distance between source and detector, which may change, but Yamamoto does at its 5th paragraph and drawing 2 (E-F), rendering claim 13 obvious. Applicants respectfully disagree.

Applicants' claim 6 sets forth an X-ray device as claimed in claim 1, such that the holding device is composed of at least two holding members, the x-ray source mounted on the first and the X-ray detector mounted on the second. Applicants' claim 13 sets forth the X-ray device as claimed in claim 6, wherein the distance between the source and detector is changeable.

There is not teaching or suggestion for combining the Yamamoto with the three references to realize an invention as set forth in applicants' claim13. Furthermore, because of the above stated deficiencies of Rattner and Kresse, even combining the two references with Holstrom and Yamamoto would not realize the device as claimed.

Accordingly, applicants respectfully assert that claim 13 is not obvious in view of Rattner, Kresse, Holstrom and Yamamoto for at least the reasons set forth above for the patentability of claims 1 and 6, and respectfully request withdrawal of the rejections to these claims under Section 103(a).

Claim 16 was rejected as unpatentable under 35 USC 103(a) over Rattner in view of Kresse and Travanty as applied to claim 8, and further in view of Japanese Patent No. JP 11-285492 to Ninomiya, et al. The Examiner asserts that Rattner does not disclose separate video monitors to

monitor C-arm motion, but Ninomiya do in their Abstract and "problem to be solved. Applicants respectfully disagree.

Applicants' claim 8 sets forth an X-ray device as claimed in claim 1, such that there are provided means for monitoring the distance between an object to be examined and moving parts of the X-ray device, notably the X-ray source and the X-ray detector. Applicants' claim 16 sets forth the X-ray device as claimed in claim 8, wherein the means for monitoring the distance include a separate video system to continuously monitor the motion of the X-ray source and detector

There is not teaching or suggestion for combining the four references to realize an invention as set forth in applicants' claim 16. Furthermore, because of the above stated deficiencies of Rattner and Kresse, even combining those references with Travanty and Ninomiya would not realize the device as claimed.

Accordingly, applicants respectfully assert that claim 16 is not obvious in view of Rattner, Travanty, Kresse and Ninomiya for at least the reasons set forth above for the patentability of claims 1 and 8, and respectfully request withdrawal of the rejections to these claims under Section 103(a).

Claim 19 was rejected as unpatentable under 35 USC 103(a) over Rattner in view of Kresse as applied to claim 1, and further in view of US Patent No. 4,358,856 to Stivender. The Examiner asserts that Rattner does not disclose a rotating connection point to the room, but Stivender does in his Abstract, lines 1-3, Fig. 2, 13, 14, 15, rendering applicants' claim 19 obvious. Applicants respectfully disagree.

Applicants' claim is sets forth above, and claim 19 further qualifies such an X-ray device to include that the supporting device is connected to the room at a connection point by a rotational hinge that permits rotation about an axis that extends perpendicularly out from the connection point.

There is not teaching or suggestion for combining the three references to realize an invention as set forth in claims 19. Furthermore, because of the above stated deficiencies of Rattner and Kresse, even combining the three references would not realize the device as claimed.

Accordingly, applicants respectfully assert that claim 19 is not obvious in view of Rattner, Kresse and Stivender for at least the reasons set forth above for the patentability of claim 1, and respectfully request withdrawal of the rejections to these claims under Section 103(a).

Respectfully submitted,

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CERTIFICATE OF MAILING

It is hereby certified that this correspondence is being deposited with the United States Postal Service as first-class mail in an envelope addressed to: COMMISSIONER For PATENTS, Washington, D.C. 20231

On December 23, 2004 By _____

Claim 1 is amended as follows:

1. (Three Times Amended) An X-ray device provided with an X-ray source and an X-ray detector which are mounted at different ends of a common holding device, the common holding device being connected to a room by way of a supporting device,

wherein the supporting device comprises a plurality of hinged, serially interconnected supporting members, wherein the hinges connecting the supporting members are plane hinges, and wherein the position of the common holding device is changed in a plane defined by the supporting members which may be individually controlled.